tion fractions at or below 20%, however, should be carefully monitored as a precautionary measure.

Two new antidepressants, fluoxetine and buproprion, appear to have a decreased potential for cardiotoxicity. To date, no reports of cardiotoxicity with the use of these medications have appeared in the literature. It should be noted that premarketing trials have been carried out on depressed patients with normal hearts, so the safety of these medications in patients with organic heart disease remains to be determined.

The safest antidepressant treatment in depressed patients with serious heart disease is electroconvulsive therapy. Although heart rate and blood pressure increase considerably during the first few minutes following the electrical stimulus using standard anesthetic techniques, creating a potential danger for a patient with a vulnerable myocardium, electroconvulsive therapy has been shown to induce only a minimal rise in these variables with the use of intravenous labetalol hydrochloride or trimethaphan camsylate (Arfonad) at the time of anesthesia induction.

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Obsessive-Compulsive Disorder

OBSESSIVE-COMPULSIVE DISORDER had, until recently, almost always been resistant to treatment. Selective serotoninergic antidepressants and behavioral therapy techniques now allow these disorders to be treated successfully.

Several double-blind placebo-controlled trials have shown fluoxetine hydrochloride (Prozac), fluvoxamine, clomipramine hydrochloride (Anafranil), and buspirone hydrochloride (BuSpar) to be effective medications. About 70% to 80% of the patients in these trials had a 45% to 55% decrease in their symptoms. In clinical terms, this meant that a patient who had spent every hour of every day locked into the performance of meaningless rituals was, after treatment, having only occasional (about once an hour) obsessive thoughts and was usually able to resist performing a compulsive ritual without an excruciating increase in anxiety. Most patients felt treatment had reduced symptoms to the point that they no longer interfered in their social or occupational functioning.

The most effective agents currently available are fluoxetine and clomipramine. The key to effective treatment with these drugs is to use a dosage schedule for a sufficient period before deciding whether a patient is treatment responsive. With clomipramine, this means using an average oral dosage of 200 mg per day (therapeutic range, 100 to 250 mg) for at least eight weeks. Patients may show little or no therapeutic response at six weeks, yet go into relative remission at eight weeks. Treatment begins at 25 mg per day and increases by 25 mg every three days, leveling off at 200 mg per day. In patients prone to panic attacks, an initial dose of 10 mg per day is used to lower the risk of inducing panic or excessive anxiety.

The dosing strategy with fluoxetine is somewhat different. A wide range of oral doses has been reported to be effective. Consequently, most regimens should be started at 20 mg per day, increasing the dose by 20 mg every six weeks. In rare instances, the dosage may be pushed to as high as 100 mg per day, but usually 40 mg per day is a therapeutic dose.

In cases refractory to treatment, even after the addition of behavioral therapy, a variety of adjunctive and combination treatments may be used, including buspirone, lithium carbonate, monoamine oxidase inhibitors, trazodone hydrochloride, alprazolam, and fenfluramine hydrochloride. There is some evidence that buspirone may be an effective agent alone at doses averaging 60 mg per day. Nevertheless, a subgroup of patients with classical obsessive-compulsive disorders, who are suffering from neither schizophrenia nor personality disorders, remain refractory to treatment. For this subgroup, a neurosurgical procedure, limbic leukotomy, has at times proved effective.

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Brain Imaging and Neurodevelopmental Psychiatry

NEURODEVELOPMENTAL PSYCHIATRY is gaining increasing recognition as an important theoretic approach to understanding the cause of many serious psychiatric disorders. In the past, investigators focused primarily on psychological, environmental, and genetic factors to explain psychiatric disturbance. The recent development of neuroimaging technologies for in vivo investigation has expanded knowledge of the neuropathy and physiology in such disturbances as schizophrenia, affective disorders, autism, obsessive-compulsive disorder, and attention-deficit disorder. Many of these findings confirm the presence of neuropathology that developed before the onset of the disorder.

Modalities used to image the brain include computed tomography, magnetic resonance imaging and spectroscopy, computed encephalography, positron emission tomography, and single photon-emission computed tomography. Of these neuroimaging techniques, magnetic resonance imaging (MRI) and magnetic resonance spectroscopy are uniquely suited to study structural, physiologic, and developmental brain abnormalities in children because they involve no ionizing radiation or radioactive isotopes and have been shown to have no biologic hazards at currently used field strengths. Magnetic resonance imaging offers superior grey-white matter delineation and excellent visualizations of midline structures. As an example, MRI studies of autistic children show posterior fossae abnormalities (cerebellum, fourth ventricle, and brain stem) compared with normal controls.

Neuroimaging has been particularly useful in the study of schizophrenia. An increasing number of studies find abnormal brain structure and function in adult schizophrenic patients compared with normal controls. These abnormalities include a larger ventricle to brain ratio; enlargement of the

lateral and third ventricles; decreased size of the temporal lobe including the hippocampus and amygdala; changes in the corpus callosum; and physiologic changes in blood flow and glucose use in the prefrontal cortex. Many of these studies report greater changes on the left than on the right. It is frequently suggested that these structural changes are present before the onset of the schizophrenic disorder and may be present prenatally or in early childhood. In a recently published MRI study, children with a disorder in the schizophrenia spectrum were found to have larger left than right frontal horns of the lateral ventricles. The schizophrenic-spectrum children also had more nonspecific MRI abnormalities than the psychiatric controls.

Thus, neuroimaging technologies are making it possible to begin to understand the connection between behavior and brain structure and function. This understanding may make it possible to develop effective prevention, early intervention, and treatment programs for patients with serious psychiatric disorders.

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Treating Compulsive Behaviors in Dermatology

PATIENTS WITH STRONG COMPULSIVE TENDENCIES are often seen by dermatologists. These patients can be divided into two groups. The first consists of those who do not have any primary skin disease. The skin changes are self-induced and are dermatologic manifestations of compulsive behavior. The second group is patients who have primary skin disorders exacerbated or perpetuated by compulsive behavior such as scratching, rubbing, and picking.

The first group includes patients with trichotillomania, who compulsively pull out their hair; onychotillomania, who pick on their nails; and compulsive hand washers. The more common examples of the second type of patients include those with lichen simplex chronicus (neurodermatitis) and prurigo nodularis. In lichen simplex chronicus, the patient has a powerful compulsion to scratch at a patch of skin that is intermittently itchy; eventually this patch of skin becomes thick and rough from trauma, often persisting for years. In prurigo nodularis, the patients have hard nodules from chronic excoriation. There are also patients with acne excoriée who compulsively pick on their acne.

The treatment of these compulsive disorders in dermatologic practice has been difficult. The recent emergence of psychopharmacologic agents with anticompulsive effects may substantially improve the treatment of these disorders. Among the medications with definite or postulated anticompulsive efficacy, clomipramine hydrochloride (Anafranil) has the best documentation regarding anticompulsive efficacy; it is also the only medication that is currently approved by the Food and Drug Administration (FDA) for this purpose. Clomipramine is a tricyclic antidepressant and, like other tricyclic agents, the dosage must be titrated until an optimal regimen is reached. The usual maximum dosage for adults is 250 mg per day and for children, 3 mg per kg per day. Clomipramine has side effects similar to other tricyclic antidepressants such as dry mouth, constipation, blurred vision, postural hypotension, and a lowered seizure threshold.

Other medications that are not FDA approved for the treatment of obsessive-compulsive disorder but that are currently undergoing extensive clinical trials to determine efficacy include fluoxetine (Prozac) and fluvoxamine. Both of these agents are powerful inhibitors of serotonin reuptake; unlike clomipramine, however, they lack significant affinity for histaminic, cholinergic, and α-adrenergic receptors and have a different side effect profile.

It should be noted that these medications are not "magic bullets." Treatment with medication alone is not adequate unless a patient is motivated to stop the damaging compulsive behavior. On the other hand, if the patient is properly motivated to stop, these medications appear to decrease the compulsive urge and thereby allow the patient to prevail in the determination to stop. Last, whenever feasible, a multidisciplinary approach to the treatment of chronic compulsive disorders in dermatology is always preferable to relying on pharmacotherapy alone. For instance, a clinical psychologist with a background in behavioral therapy may use techniques such as response prevention, response substitution, and "flooding" to modify the behavior.

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Bulimia Nervosa

BULIMIA NERVOSA is a disorder characterized by repeated and frequent episodes of binge eating large quantities of food—at least two episodes per week for a period of at least three months—often followed by purging, usually by inducing vomiting, but also by using laxatives, emetics, and diuretics. Patients are preoccupied with weight and feel unable to resist the urge to binge eat. About 95% of sufferers are women, and, although most are at normal weight, the disorder may also be seen in extremely thin patients with anorexia nervosa. About 25% of obese patients are estimated to binge eat in a manner similar to that of some patients with bulimia nervosa, but they do not purge. Although the prevalence of clinically unmistakable bulimia nervosa is estimated at between 1% and 3% of college-aged women, many more women have "subclinical" disorders. The disorder is most common among middle- and upper middle-class white women, although an increasing number of less affluent and of minority patients are being seen. Frequent associated disorders include depression (50% to 75%) and alcoholism or other substance use disorders (about 30%). These patients also often exhibit dramatic personalities and impulsive behaviors involving overspending, sexual behaviors, and shoplifting. Family histories often reveal mood disorders, alcohol and substance abuse, and eating disorders.

Patients are often secretive about their problems. Clinical features to raise suspicion include weight and diet preoccupation in normal-weight women, swollen salivary glands (giv-